

**REMARKS**

Reconsideration of the rejected claims in view of the following remarks is respectfully requested.

**Claim Rejections under 35 U.S.C. § 112, second paragraph**

The Office Action rejects claims 1 and 19 under 35 U.S.C. § 112, second paragraph, as allegedly being incomplete for omitting essential steps.

Specifically, the Examiner asserted that it is unclear how the claimed invention determines when a document is misrouted. Furthermore, the Examiner argues that it is not apparent how the claimed invention determines when to switch modes, and how these two functions of the claimed invention are related. In response, Applicants will address the Examiner's questions by explaining how the claim elements of the claimed invention relate to one another, and how these relationships are described in the claims. The following discussion will be provided with respect to claim 1, as the elements of claim 19 are similar to those of claim 1.

Initially, Applicants note that the claimed invention utilizes a "confidence value," which classifies or identifies a document that falls below the user-specified confidence threshold required for automatic routing of said document.<sup>1</sup> A classification confidence value that falls below the confidence threshold implies a level of likelihood has been reached in which the

---

<sup>1</sup> Claim 1 recites "a router that routes the document to one of a plurality of destinations in dependence upon the classification, wherein the classification has associated therewith a *confidence value*, and wherein the router compares the confidence value to a threshold, the router making at least one of an automatic routing decision and a manual routing decision in dependence upon the comparison, and wherein the threshold is adjustable to match a desired *confidence value* to allow transition from a state where manual routing is favored to a state that favors automatic routing."

automatic routing of the document would produce a classification which a human user would deem as wrong.<sup>2</sup>

This level of likelihood represents some subjective (and possibly non-quantitative) user perspective above which the experienced rate of document misclassification (as deemed by the user) would reach a level that the user would deem unacceptable. Under such circumstances of low classification confidence, the claimed invention would direct the document to the administrator workstation, whereupon the human administrator makes a decision as to the actual classification of the document.<sup>3</sup> The actual event of the administrator confirming (via the administrator workstation) his decision on the actual classification of the low confidence document represents an explicit signal that can be communicated from the administrator workstation to the claimed invention to indicate that it should switch mode.<sup>4</sup>

Accordingly, Applicants submit that the features of the claimed invention, discussed above, are explicitly described in various aspects of the claims, including (but not limited to) the classifier and router elements recited in claim 1. Thus, Applicants submit that the claims sufficiently describe how the elements of the claims are interrelated, and are not incomplete or omitting essential steps. Therefore, Applicants respectfully request withdrawal of the 35 U.S.C. § 112, second paragraph, rejections of claims 1 and 19.

---

<sup>2</sup> Claim 1 recites "...wherein the router compares the confidence value to a threshold, the router making at least one of an automatic routing decision and a manual routing decision in dependence upon the comparison."

<sup>3</sup> Claim 1 recites "...wherein the router compares the confidence value to a threshold, the router making at least one of an automatic routing decision and a *manual* routing decision in dependence upon the comparison, and wherein the threshold is adjustable to match a desired confidence value to allow transition from a state where *manual* routing is favored to a state that favors automatic routing, and wherein at least one of a misrouted document is sent to a correct destination by a *manual* routing and the classifier being switched to the knowledge acquisition mode when a document has been determined to be misrouted."

<sup>4</sup> *Ibid.*

**Claim Rejections under 35 U.S.C. § 103(a)**

The Office Action maintains the rejection of claims 1, 9, 13, 14, 19-24 under 35 U.S.C. § 103(a) over Masand et al. (U.S. Patent No. 5,251,131, hereinafter “MASAND”) in view of Mathias et al. (U.S. Patent No. 6,480,627, hereinafter “MATHIAS”) and further in view of Kamel et al. (U.S. Patent No. 5,937,037, hereinafter “KAMEL”). Claims 2 and 4 are also rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of MASAND, MATHIAS, and KAMEL in view of Tan (“Learning User Profiles for Personalized Information Dissemination,” hereinafter “TAN”). Furthermore, the Office Action rejects claim 3 under 35 U.S.C. § 103(a) as being unpatentable over the combination of MASAND, MATHIAS, KAMEL, TAN in view of TAN2 (“Cascade ARTMAP: Integrating Neural Computation and Symbolic Knowledge Processing,” hereinafter “TAN2”). Lastly, claims 10-12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of MASAND, MATHIAS, and KAMEL in view of Register (U.S. Patent No. 5,371,807, hereinafter “REGISTER”).

Applicants submit that the applied references do not teach or suggest all of the elements of the claimed invention, and disagree with the Examiner’s interpretation of the applied publications.

For example, the Examiner argues that the recitation “added incrementally” in claim 1 is equivalent to the “piecemeal approach” disclosed in MASAND (*see* page 4, lines 6-7, of the outstanding Office Action). Applicants submit that these features are not comparable or analogous to one another. The claimed invention is based upon an AI-based (specifically, neural network-based) learning algorithm. Traditionally, such algorithms have difficulty training on a supplementary set of training documents after having completed training on some original training document set. This is due in part to the process of generalization involved in AI-based

learning algorithms. As discussed in the present specification, “incremental learning of new cases does not require re-learning of previous cases, thus eliminating the need to preserve past cases for re-learning” (*see, e.g.*, page 3, lines 21-22 in the specification).

The claimed invention preserves past cases, while the method disclosed in MASAND involves no tangible generalization of the training data, as explicitly described in MASAND (*see, e.g.*, MASAND, col. 29, line 39, to col. 30, line 39; *specifically*, col. 30, lines 6-21). Although MASAND describes a reduction in the number of records needed to store all original extracted information (*see, e.g.*, MASAND, col. 30, lines 21-26), one skilled in the art would not reasonably equate this to generalization. When MASAND discusses a reduction in the number of records, MASAND is simply disclosing or suggesting discarding *duplicates* (not because MASAND discloses or even suggests generalization of training data). Therefore, because MASAND does not perform generalization, used in learning algorithms, the “piecemeal approach” to construction of the training database does not teach or even suggest “association of a classification with each document...added incrementally to a knowledge base,” as recited in the claims.

Furthermore, the Examiner asserts that “there are no parallel processors in MASAND, thus all information is added incrementally” (*see* page 4, lines 7-8, of the Office Action). Applicants question the factual basis of this statement. Throughout MASAND, references are made as to the parallel nature of the processing by MASAND. For example, in column 8, line 4, of MASAND, MASAND refers to a “data parallel system” in Figure 1. This is directly contrary to the Examiner’s assertion that “there are no parallel processors in MASAND,” which further calls into question the Examiner’s assertion that information in MASAND is added incrementally.

In addition, Applicants note that the Office Action asserts that the “knowledge base” in the claimed invention is equivalent to the “set of rules” disclosed in MASAND (*see, e.g.*, page 4, lines 10-11, of the outstanding Office Action). In response, Applicants note that MASAND does not use rules. On the contrary, the example of rule-based reasoning systems in MASAND is used as an illustration of the disadvantages of rule-based systems and to demonstrate MASAND's supposed superiority over rule-based systems. Thus, based on the characterization of rule based systems in MASAND, one skilled in the art would presume that MASAND actually *teaches away* from rule based systems.

For example, MASAND presents two competing types of reasoning systems: rule-based versus memory-based (*see, e.g.*, MASAND, column 1, line 65, through column 2, line 10, and column 2, line 52, to column 2, line 61). MASAND mentions that memory-based approaches use training data, that MASAND's approach solves the inherent problem of memory-based approaches, and that MASAND's approach includes a training database for storing training records (*see, e.g.*, MASAND, col. 2, lines 57-61, col. 5, lines 66-68, col. 6, lines 12-13, col. 6, lines 26-27). Thus, MASAND is a memory-based approach and not a rule-based approach, and does not contain a “set of rules” that can be compared with our proposed invention's knowledge base. Therefore, Applicants submit that the claimed “knowledge base” is not equivalent to the “set of rules” in MASAND, and even the teachings of MASAND supports Applicants' argument that these are not equivalent technical features.

Furthermore, the Examiner asserts that “MASAND teaches a router” to support his contention that MASAND discloses the claimed router (MASAND, col. 9, lines 4-16) that “routes the document to one of a plurality of destinations in dependence upon the classification...” (*see, e.g.*, page 5, line 1, of the Office Action). However, the “router” discussed

in MASAND is a hardware device that is part of the parallel system architecture of MASAND, which is responsible for directing signals between the multiple “Processor Elements” that are running in parallel in MASAND. Therefore, the “router” in MASAND does not relate to routing documents upon classification, as described in the claimed invention. Therefore, MASAND fails to disclose yet another technical feature of the claimed invention.

Furthermore, the Examiner incorrectly assumes that “[t]he prevention of a misrouted document of applicant is equivalent to ‘feedback system’ to avoid misrouted messages,” as discussed on page 5, lines 18-19, of the outstanding Office Action. A feedback system, such as that disclosed in KAMEL, is essentially a delivery-and-acknowledgement process involving a sender sending a message or object to the intended recipient of that message or object and the recipient acknowledge receipt of that message or object. Applicants submit that the manual routing in the claimed invention is more similar to a referral process. The human administrator interacting in the claimed invention is not the intended recipient of the document sent by the system, but rather acts as a “higher authority” with which the system consults when in doubt (i.e., when the confidence level does not satisfy the minimum threshold). Thus, KAMEL fails to disclose or suggest this element of the claimed invention.

Lastly, Applicants note that the Examiner argues that KAMEL teaches the elements of claim 13 because KAMEL is allegedly directed to “the purpose of not losing documents which were first sent to the wrong destination” (the discussion of claim 13 on page 7 of the outstanding Office Action). The misrouted messages in KAMEL can not properly be equated with the concept of misclassified documents in the claimed invention.

In KAMEL, misrouted messages are like correctly addressed letters that have been delivered to the wrong address, where the recipient of the letter returns the letter to the post

office and the letter is resent to the intended address. KAMEL is not directed to or applicable to a situation where the address is added to a letter with only a name specified (i.e., the input feature), and the letter is delivered to the correct address, but there is no such recipient at the address. Therefore, Applicants submit that the misrouted messages in KAMEL are not equivalent to the misclassified documents in the claimed invention. KAMEL is directed to solving a different problem than the claimed invention, and, therefore, uses a different solution to solve these problems. Because the teachings of KAMEL can not be properly applied in a manner that would allow one skilled in the art to handle misclassified documents (as in the claimed invention), Applicants submit that KAMEL fails to teach or suggest all of the elements of the claimed invention.

Applicants submit that the teachings of MATHIAS, TAN, TAN2, and REGISTER fail to cure the deficiencies of MASAND and KAMEL discussed above. For the reasons discussed above, Applicants submit that even if the cited publications were combined in the manner suggested by the Examiner, one skilled in the art would not arrive at the claimed invention. Therefore, Applicants submit that the cited publications, alone or in combination, do not disclose or render obvious all of the elements of the claimed invention.

Thus, Applicants believe that claims 1-3, 9-14, 19-21 and 23-24 are in condition for allowance and respectfully request reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejections, along with an indication of their allowability.

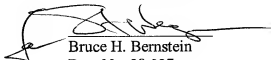
**SUMMARY AND CONCLUSION**

For the foregoing reasons, it is believed that all of the claims in this application are in condition for allowance, which action is respectfully requested.

If any extension of time is deemed to be necessary to maintain the pendency of the application, including any extension of time fees for entry of an Examiner's Amendment, the Patent and Trademark Office is hereby requested and authorization is hereby provided to charge any necessary fees to maintain the pendency of this application to Deposit Account No. 19-0089.

If the Examiner has any questions, or wishes to discuss this matter, the Examiner is respectfully invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,  
Ah Hwee TAN et al.



Bruce H. Bernstein  
Reg. No. 29,027

December 5, 2007  
GREENBLUM & BERNSTEIN, P.L.C.  
1950 Roland Clarke Place  
Reston, VA 20191  
(703) 716-1191

Steven Wegman  
Reg. No. 31,430